

In re Patent Application of:

RIGGINS et al

Serial No.: 08/206,405

Filed: March 7, 1994

Title: DYE DIFFUSION PROMOTING AGENTS FOR
ARAMIDSHonorable Commissioner of Patents
and Trademarks
Washington, DC 20231

Sir:

Atty Dkt: 11-781

C#

M#

Group Art Unit: 1105

Examiner: Einsmann

Date: August 10, 1994

RESPONSE/AMENDMENT/LETTER

This is a response/amendment/letter in the above-identified application and includes an attachment which is hereby incorporated by reference and the signature below serves as the signature to the attachment in the absence of any other signature thereon.

Fees are attached as calculated below:

Total effective claims after amendment (14) minus highest number		
previously paid for (20) (at least 20) = 0 x \$22	\$	0.00
Independent claims after amendment (4) minus highest number		
previously paid for (4) (at least 3) = 0 x \$74	\$	0.00
If any proper multiple dependent claims now added for first time, add \$230 (ignore improper)	\$	
Petition is hereby made to extend the current due date so as to cover the filing date of this paper and attachment(s) (\$110/1 month; \$360/2 months; \$840/3 months)	\$	
Terminal disclaimer enclosed, add \$110	\$	
SUBTOTAL	\$	0.00
If "small entity," then enter half (1/2) of subtotal and subtract	-()
[] Statement filed herewith		
Rule 56 Information Disclosure Statement Filing Fee (\$200)	\$	
Assignment Recording Fee (\$40.00)	\$	
TOTAL FEE ENCLOSED	\$	0.00

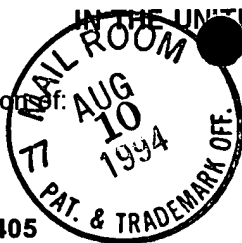
The Commissioner is hereby authorized to charge any deficiency in the fee(s) filed, or asserted to be filed, or which should have been filed herewith (or with any paper hereafter filed in this application by this firm) to our Account No. 14-1140. A duplicate copy of this sheet is attached.

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NIXON & VANDERHYE P.C.

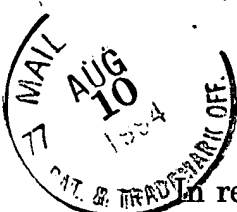
By Atty.: Arthur R. Crawford

Reg. No. 25,327

Signature: Arthur R. Crawford

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GROUP 110

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

#18
11-29-94
DJA

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RIGGINS et al

Serial No. 08/206,405

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For: **DYE DIFFUSION PROMOTING
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Honorable Commissioner of Patents and
Trademarks
Washington, DC 20231

RESPONSE

Sir:

This responds to the Official Action dated June 30, 1994, Paper No. 6.
Claims 1-13 and 65 are active in the application.

Responding to point 1 of the Examiner's letter, attached are declarations
under 37 CFR 1.608(a) from each of the inventors. The requirements of
37 CFR 1.608 have been satisfied in that the inventors allege that there is a basis
upon which they are entitled to a judgement relative to the patentee of U.S.
Patent 5,207,803.

In item 2 the Examiner rejects claims 1-13 and ⁶⁵~~16~~, all the claims in the
case, as being unpatentable under 35 U.S.C. §102(e) over the disclosures of U.S.
Patent 5,207,803 to Holsten et al from which Applicants have copied claims. The
effective date of the cited Holsten et al patent is September 28, 1990, its actual

U.S. filing date. In contrast to this the present Applicants claim benefit through a series of prior applications of October 31, 1990. Applicants submit that the cited Holsten et al patent is not properly citable as prior art in accordance with 35 U.S.C. §102(g). Applicants invented their claimed subject matter prior to the actual U.S. filing date of the cited Holsten et al patent; see item 1 discussed above.

Selected claims (1, 4, 7, 10, 12, and 65) have been rejected as allegedly being anticipated by the British patent, the Examiner directing attention to example 2A and example 30. Reconsideration of this rejection is requested as the involved claims are in no way anticipated.

British patent specification 1,275,459 to Gruen describes a batch process for dyeing synthetic fibers including NOMEX®, polybenzimidazoles and the like (page 4, lines 16-40) using an organic solvent such as DMSO in an aqueous solution, optionally with a metal salt such as lithium bromide, either as a pretreatment prior to dyeing or as a single bath which also includes a dyestuff. Salient points of this patent are summarized below:

organic solvents:

page 2, lines 51-57

N-methyl-2-pyrrolidone
dimethylsulfoxide
dimethyl acetamide
dimethyl formamide

diluents:

page 6, Examples 19 & 20

water
ethyl alcohol
isopropanol

ratio of solvent: diluent

75:25

page 6, Example 19

50:50 (1:1)

page 7, Example 29

treatment temperatures:

75°C (167°F) to the boil

page 3, line 98

10°C (50°F) to 250°C (482°F)

reduction in fiber strength:

at most 10%

page 2, lines 62-72

type of process:

dyeing or printing

page 2, line 10

The Examiner's comments in item No. 4 include the observation of Gruen's use of tetraethyl urea, which is a nine-carbon amide, as an assistant for dyeing amides. Also mentioned is Example 2A, which involves the use of dimethyl formamide (DMF) for the same purpose, but DMF has only three carbon atoms and thus is not relevant to Applicants' claims requiring at least 7 carbon atoms.

The dyeings conducted using tetraethyl urea (Example 17 I and J, and Example 30 G) were anhydrous, as were the majority of Gruen's dyeings. It is true that Gruen employs 25% of water (Example 19), and of many other solvents as well (Example 20). In his Example 21, he uses 50% water with dimethyl sulfoxide. Examples 28, 29 and 40 use 25 to 50% of water, although with decreasing effectiveness. This is a long way from the process of the present application, however, where an amount of reagent diffuses into the Nomex fiber from a 3% solution, causing swelling and susceptibility to dyeing. Gruen also does not fulfill Applicants' requirements for swelling.

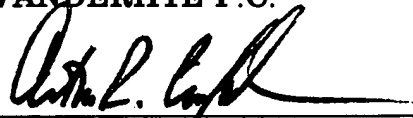
Gruen describes a batch process, a procedure less attractive and more costly than continuous processing as in the subject application. In addition, continuous processing allows greater uniformity of coloration from end to end and better shade control. Continuously dyed fabrics are expected to have better strength retention than fabrics dyed in a batch process because fabric relaxation and shrinkage inherent in a batch process results in strength loss, especially of highly-oriented aramid fibers such as those with which the subject application is concerned. Continuous processing generally maintains tension and hence strength better than a batch process.

It is respectfully submitted that claims 1, 4, 7, 10, 12, and 65 are free of the prior art. Reconsideration of this application and the declaration of an interference are again requested.

Respectfully submitted,

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